ChatGPT in the Classroom: Students' Ranking of Argumentative Papers Using ChatGPT in the Writing Process

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How many of you have felt that Chat GPT has had an impact on their students' writing?

Using fingers, on a scale from 1 to 10 (1 is severely negative impact and 10 is extremely positive impact)

Previous Research

The effect of AI-assisted language learning tools on enhancing the writing abilities of English language learners has been the subject of several studies

In their study of the effects of AI-supported language learning on the writing abilities of English as a Foreign Language (EFL) learners, Liu et al. (2021) discovered that the AI-supported strategy significantly improved the writers' writing capabilities.

Similar to this, Yan (2023) examined how ChatGPT, an AI-assisted language learning tool, affected EFL learners' writing abilities and found that AI-assisted language learning significantly improved their writing ability.

ChatGPT Usage at UCW

-Developed by OpenAI and released to the public in November 2022

-Started to see uptick in plagiarized papers, but not much we could do at that moment

-Solutions? Discussions with colleagues, original materials, in-class writing, old school methods to check for plagiarism

-Some methods backfired

-Conclusion: Why not teach students how to use it wisely?

Justification of the Study

◈ Students learn through doing; we were successful with other projects in UAP program to avoid plagiarism (TPOV)

◈ As a writing tool in the classroom, ChatGPT encourages critical thinking by prompting students with questions and alternative perspectives. It also encourages students to consider various angles and strengthens their argumentative skills.

◈ ChatGPT offers improved writing efficiency; it can assist students in overcoming writer's block and help them organize their thoughts, improving the overall efficiency of the writing process.

Purpose of the Study

The purpose of this research was to look at the capability of ChatGPT as a tool for helping to write rather than a tool used for cheating and for helping to boost grades

By using ChatGPT in the classroom, students would be able to utilize ChatGPT as a tool for pre-writing rather than using it for their whole paper.

They would have the ability to see what ChatGPT can/cannot do.

Research Questions
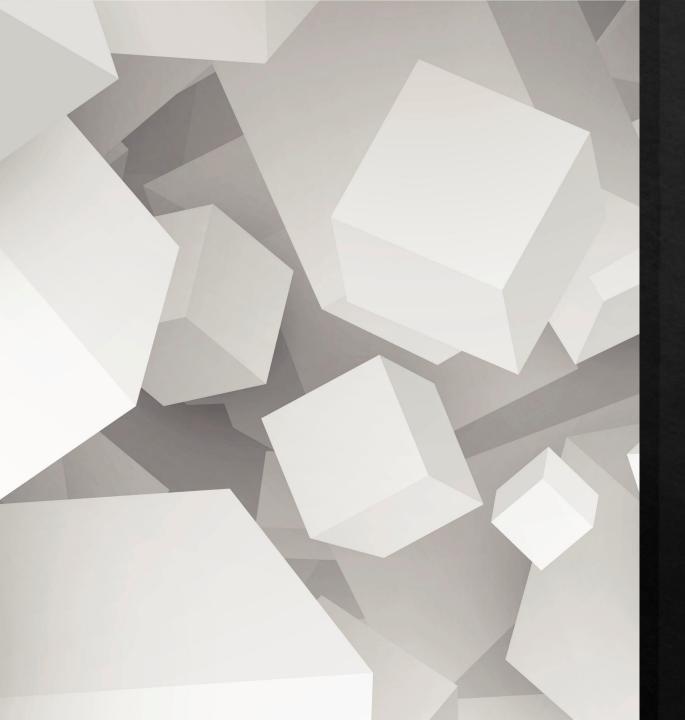
1 Does using ChatGPT for pre-writing tasks produce better quality content overall?

2 Can ChatGPT be used to write an entire argumentative essay and produce quality content, or are there some tasks which ChatGPT cannot perform well such as producing academic essays?

3 Does producing original content and refraining from using ChatGPT at all stages of writing produce better quality content overall?

4 Will students see the benefits of using ChatGPT for better quality content in writing?

Objectives

◈ The objectives of this study were as follows:

1) to discern the impacts of Chat GPT at various stages of the academic writing process

2) to determine whether the use of AI writing assistants led to measurable improvements in students' essay writing skills at various stages of the writing process in terms of academic quality and content

3) to investigate students' perceptions, attitudes, and evolving opinions regarding AI writing assistance in education

Methodology

* After learning about the academic writing process, students were tasked with having to write a 5-paragraph argumentative essay with a word limit of 1000 words.

* Students were all assigned the same argumentative essay topic challenging enough to gauge students' writing abilities effectively

* Provided with necessary training and instructions on how to use ChatGPT according to their assigned condition, but NOT told which commands to give ChatGPT.

* Students were randomly assigned to one of four groups

* Essays written during online guided learning classes over a period of three weeks, and ranking of essays using a checklist done in class time

Ground Rules

◈ Some ground rules were set for the task:

1) Could only use the free version of ChatGPT

2) Had to stay in their group (no switching)

3) May not collaborate with other groups outside their own group

4) Must only write essays during online guided learning classes over a period of three weeks

Groupings

This study involved four groups of students, each aimed at examining distinct approaches to utilizing ChatGPT in the context of academic essay composition. The procedure unfolded as follows:

Control Group: In this control condition, students composed their essays through conventional means, without any access to ChatGPT or other AI tools, adhering to traditional writing methodologies.

ChatGPT Pre Group: Participants in this group were granted permission to employ ChatGPT during the pre-writing phase exclusively. They could engage with ChatGPT for idea generation, outlining, and conceptual scaffolding; however, the subsequent argumentative essay must have been autonomously authored by the students themselves.

Groupings

ChatGPT Post Group: This cohort was expected to independently craft their argumentative essays initially. Subsequently, they were permitted to submit their essays to ChatGPT for post-writing support, encompassing grammar and spelling correction, solicitation of feedback, or having it write the essay at a 'higher' level.

All ChatGPT Group: In the final group, students were sanctioned to leverage ChatGPT comprehensively throughout the essay composition process. They had liberty in initiating their essays using ChatGPT-generated prompts, iteratively refining and tweaking content as desired, ultimately culminating in the direct incorporation of ChatGPT's output into their final essays.

Students' Ranking of Argumentative Essays

Checklist table (left):

Checklist ✓		1 – Poor 2 – Needs Help 3 – Average 4 – Good 5 – Excellent
INTRODUCTION		
	Is there a hook?	
	Is there background information?	
	Is there a rationale?	
	Is there a thesis statement which introduces the argument (+ stance/perspective) and supporting points?	
BODY PARAGRAPH 1 - 3		
	Are there a clear topic sentences?	
	Do the topic sentences connect with the thesis statement?	
	Do they include supporting details?	
	Does B1 have one clear argument?	
	Does B2 have one clear argument?	
	Does B3 have one clear counterargument + refutation?	
	Is there one concession? (optional)	
CONCLUSION		
	Do they restate the thesis statement in the first sentence?	
	Do they summarize the main ideas?	
	Do they demand action, suggest a solution, and/or predict an outcome?	
OVERALL		
	Do they use paragraphs correctly? (Minimum 5 sentences per paragraph).	
	Do they have the correct word count of 1000 words?	
	Do they use transition words correctly?	
	Do they use evaluative language?	
	Do they use at least 3 scholarly articles + 2 others?	
	Do they have one clear perspective?	
	Do they use a combination of direct quotations and paraphrasing?	
	Do they have the 80-20 ratio of own content vs. information from other sources?	
GRAMMAR		
	Correctness (circle any mistakes – don't correct)	
	Do they use a combination of sentence types?	
VOCABULARY		
	Do they have correct spelling?	
	Do they use synonyms?	
	Do they use tonal language to show stance?	
UNITY AND COHERENCE		
	Are the paragraphs united?	
	Is the content understandable?	
FORMATTING		
	Title Page	
	Correct APA references	
	Correct in text citations	
	All references and in text citations match	
	Font, Justification, Double-spaced, Size, page numbers, etc.	
TOTAL		

STUDENTS WERE ASKED TO RANK THE COMPLETED ARGUMENTATIVE ESSAYS IN TERMS OF OVERALL ACADEMIC QUALITY AND CONTENT

COULD SYSTEMATICALLY RANK ARGUMENTATIVE ESSAYS CONSIDERING THESIS CLARITY, ARGUMENT STRUCTURE, EVIDENCE QUALITY, ANALYSIS DEPTH, LANGUAGE USE, GRAMMAR CORRECTNESS, AND ADHERENCE TO ASSIGNMENT GUIDELINES.

RESULT: STUDENTS COULD SEE THE POSITIVE AND NEGATIVE IMPACTS CHATGPT HAD ON THE DIFFERENT STAGES OF THE WRITING PROCESS WHEN IT CAME TO ACADEMIC QUALITY AND CONTENT.

THEY FOUND THAT CHATGPT IS AN EXCELLENT TOOL THAT COULD BE USED IN THE PRE-WRITING PROCESS TO HELP GENERATE AND ORGANIZE IDEAS IN ORDER TO PRODUCE ASSIGNMENTS WITH OVERALL BETTER ACADEMIC QUALITY AND CONTENT.

Argumentative Essay Checklist

Students were first asked to read each line of the checklist and put a check beside the items which were included in the essay.

In the second step, students were asked to rank each of the items (1=not great, 2=needs help, 3=good, 4=excellent

Put a check ✓ if included in essay	1 = Not Great 2 = Needs Help 3 = Good 4 = Excellent	
	Give a rating of each item between 1 and 4 in the right-hand column	
	INTRODUCTION	
	Is there a hook?	
	Is there a rationale?	
	Is there background information?	
	Is there a thesis statement which includes the topic, stance/perspective of argument and reasons?	
	BODY PARAGRAPHS 1 - 3	
	Are there clear topic sentences?	
	Do the topic sentences match the order of ideas in the thesis statement?	
	Do the body paragraphs include supporting details?	
	Does the first paragraph focus on one clear argument?	
	Does the second paragraph focus on one clear argument?	
	Does the third paragraph have one clear counterargument + a refutation?	
	CONCLUSION	
	Does the conclusion restate and paraphrase the thesis statement in the first sentence?	
	Does the conclusion summarize the main ideas?	
	Does the conclusion provide a call to action such as a suggestion, recommendation, solution, or prediction for the future?	
	RESEARCH	
	Is there at least one piece of research (citation) per body paragraph to back up the argument?	
	Does the essay use at least 2 scholarly articles + 2 other popular sources?	
	Does the essay use a combination of direct quotations and paraphrasing?	
	SPELLING AND GRAMMAR	
	Is the essay free of any spelling errors?	
	Is the essay grammatically accurate (or are there any subject-verb conjugation errors, inaccurate use of plurals, incorrect use of articles, word form errors, etc.?)	
	Does the essay use a combination of sentence types (simple, compound, complex, and compound-complex)	
	VOCABULARY	
	Does the essay use academic vocabulary throughout?	
	Does the essay use synonyms instead of repeating the same words?	
	Does the essay use a variety of reporting verbs to introduce quotes and paraphrases?	
	Does the essay use transitional phrases to show contrast between the author's stance, the counterargument, and the rebuttal?	
	UNITY AND COHERENCE	
	When reading the essay, does one paragraph flow to the next?	
	Is the content understandable?	
	Is the essay free of any first-person opinion (I, my, me, etc.)?	
	APA FORMATTING	
	Has an APA Title Page (includes title, students' name, student number, course	

Students' Final Ranking

◈ Overall, students ranked the essays from the first, second, and third group higher than the fourth full ChatGPT group

◈ Essays which were written using ChatGPT for just about everything did not include research, nor did they have a counter argument and rebuttal (more like persuasive essays). Also, there was not as much unity and coherence of ideas.

Quantitative Findings

◈ The essays written without ChatGPT help consistently had more 4 ratings when looking at each element in a paragraph (introduction, body paragraphs, and conclusion). The quantity and quality of research was also in the 3-4 range.

◈ Essays written using ChatGPT in the pre-writing stages also had 4 ratings for elements in a paragraph and quantity and quality of research, in the 3-4 ranges, but also scored higher for unity and coherence

◈ Essays written without ChatGPT but using the AI tool to check for grammar, sentence structure and vocabulary use had higher ratings for grammar and vocabulary usage, but also ranked high for unity and coherence

◈ Essays entirely written using ChatGPT had the most significant problems and lowest ratings for research and APA formatting, with these essays having the weakest arguments overall

Qualitative Findings (Students' Comments)

Perception: Students commented on the use of ChatGPT in different stages of the writing process and its impact on their writing skills and confidence.

Engagement and Motivation: Students commented on whether using ChatGPT enhanced their engagement and motivation towards writing argumentative essays.

Writing Process: Students commented on their own experiences with integrating ChatGPT into their writing process and any challenges they encountered.

Feedback and Revision: Students commented on whether utilizing feedback generated by ChatGPT influenced their revision process.

Students' Comments

◈ Students from the first group who didn't use ChatGPT at all found it harder to stay focused on one topic in the body paragraphs of their essays

◈ Students from the second group who used ChatGPT only for the pre-writing (brainstorming, outlining) stages found it easier to organize their ideas into a way that is focused. It was also a way of confirming that their own ideas were good ideas.

Students' Comments

- Students from the third group who used ChatGPT only to check for spelling, grammar, sentence structure and vocabulary errors felt their writing greatly improved

- Students in the final group found that ChatGPT was incapable of citing and creating counterarguments.

Conclusions

- Using ChatGPT for pre-writing tasks such as brainstorming and outlining did seem to produce better quality content overall than work which was produced using only commands using the AI tool

- Students also found it motivating to confirm their own thoughts and ideas were on track with the task

- On its own, ChatGPT was not about to produce content which included both argument and counterargument and was not able to provide evidence for an argument (citations); however, it was able to produce essays with much better writing in terms of grammar, sentence structure and higher-level vocabulary.

Conclusions

ChatGPT can be very helpful when it is used as a tool in writing to help brainstorm ideas, to help organize ideas, and to check work to make it appear more polished and/or more academic

Students were able to see the benefits of using ChatGPT in the pre stages of their writing and when trying to bring their writing to a higher level

Limitations and Future Research

This research was conducted with two different classes of approximately twelve students each, therefore it was a very small study; larger groups may have produced a different result

Students were asked to write only one style of essay (argumentative); it is unclear whether students would have produced better essays using ChatGPT for a different style of essay

Students were told only to use the free version of ChatGPT; therefore, it is unclear whether students would have produced better essays using the paid version of ChatGPT

Further research with a larger group of participants using different versions of ChatGPT may be needed to produce a different outcome

References

◈ Liu, C., Hou, J., Tu, Y. F., Wang, Y., and Hwang, G. J. (2021). Incorporating a reflective thinking promoting mechanism into artificial intelligence-supported English writing environments. *Interact. Learn. Environ.* 31, 3340–3359. doi: 10.1080/10494820.2021.1927115

◈ Yan, D. (2023). Impact of ChatGPT on learners in a L2 writing practicum: an exploratory investigation. *Educ. Inf. Technol.* 28, 13943–13967. doi: 10.1007/s10639-023-11742-4

Questions?